

## 5. Howard

**Program Name:** Howard.java

**Input File:** howard.dat

You are the newest member of the basketball team at your school. Professional player Howard Dwight is coming to help coach and take you guys to the next level. One of the big things he wants to do is to start incorporating “Advanced Statistics” into your schemes as a team. The first thing he’s going to do is sort the players based on their true shooting percentage, and if two players have the same true shooting, then sort by their assist to turnover ratio. True shooting percentage can be calculated using the following formula: (variables defined in input section below)

$$TS = \frac{PTS}{(2 * (FGA + 0.44 * FTA))}$$

Assist to Turnover ratio can be calculated simply by dividing the number of assists by the number of turnovers.

You have been assigned the job of sorting the players, and choosing the best player at each position to create the ideal starting lineup. Remember to sort by players with the largest true shooting first, and then if any are equal sort by players with the higher assist to turnover ratio (APG / TPG).

**Input:** The input will begin with an integer, n (0 < n ≤ 1000), denoting the number of players to follow. Each player will appear on a single line with the following fields in the order listed below, all separated by spaces:

- Number – The number on a player’s jersey, an integer value.
- Name – The player’s last name, a string.
- Position – A string denoting which position this player plays.
  - Will be PG, SG, SF, PF, or C
- PTS – Points per game, a floating point value (maximum 3 decimal places).
- APG – Assists per game, a floating point value (maximum 3 decimal places).
- FGA – Field goals attempted per game, a floating point value (maximum 3 decimal places).
- FTA – Field goals attempted per game, a floating point value (maximum 3 decimal places).
- TPG – Turnovers per game, a floating point value (maximum 3 decimal places).

**Output:** Output the best player to be in the starting lineup for each position, in the order PG, SG, SF, PF, C. Each position should be listed on its own line, followed by a colon and a space, followed by the number of the player, a period, a space, and the last name of the player. There is always guaranteed to be at least one player for each position, and no players will have equal true shooting AND assist to turnover ratio.

**Sample input:**

```
8
12 Armstrong PG 18.5 7.8 9.9 3.4 2.7
15 Devens PG 17.6 8.0 10.0 3.3 1.4
13 Harden SG 35.6 7.6 24.3 10.5 4.5
34 O'Neal C 28.5 1.5 17.3 12.6 1.8
9 Caruso PG 8.5 3.4 5.4 0.8 0.5
2 Doncic SG 34.7 9.5 27.5 8.4 3.9
23 James SF 28.5 10.1 19.4 7.3 2.4
35 Durant PF 31.4 3.4 19.6 9.3 2.3
```

**Sample output:**

```
PG: 12. Armstrong
SG: 13. Harden
SF: 23. James
PF: 35. Durant
C: 34. O'Neal
```